12(2) SOV/113-59-5-10/21

AUTHOR: Golosov, V.M., Stalin Prize Laureate; Tsikurin, V.V., Candidate of Technical Sciences, Deceased

TITLE: An Automobile Engine Heater

PERIODICAL: Avtomobil'naya promyshlennost', 1959, Nr 5, pp 26-28 (USSR)

ABSTRACT: The authors describe an automobile engine heater which was successfully tested on a ZIL-151 truck. The L-shaped heater is welded of 1.25 mm sheet steel and has the overall dimensions of 420x135x275 mm. The heater surface is 0.38 m^2. The heater has a water jacket which is connected to the water cooling system of the engine by hoses. Water circulation is achieved by thermosyphon action. The heater burns diesel oil, kerosene or gasoline. The exhaust gases are used for heating the oil pan and the crankcase. The heater is installed on the left side of the ZIL-151 engine and the fuel tank must be mounted at least 300mm above the heater. The heater system

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An Automobile Engine Heater

is shown in Figure 1. The fuel is sprayed into the heater by air, using a whirl nozzle, as shown in Figure 2. The fuel is ignited by a glow plug, shown in Figure 3. Experiments showed that a cast iron evaporator installed in the heater stoker will increase the efficiency by 15-20%. The air pressure required for atomizing the fuel is provided by a fan having a six-blade impeller of 100 mm diameter which is seated on the shaft of the electric motor MP-1. The rpm of the battery-operated motor depends on the voltage. At 12 volts the motor develops 7000 rpm producing an air pressure of 75 mm water column which is adequate for burning 3.5 kg fuel. At 24 volts, the motor will develop 10,500 rpm and 200 mm air pressure, adequate for burning 7.5 kg fuel. The power consumption of the motor is 70 and 150 watts respectively. The second stage is used for heating compression ignition engines, for example, on the YaAZ-210 truck. Depending upon the operating con-

An Automobile Engine Heater

ditions, the heater will produce 10,000 - 15,000 kcal/h at an efficiency of 0.750-0.61 - which is adequate for heating a ZIL-151 engine to 65-70° C (water temperature 80°C) within 14-16 minutes, or 15,000 - 18,000 kcal/h at an efficiency of 0.61-0.51. The lower efficiency for the latter is explained by a lesser amount of excess air in the stoker. A cast iron evaporator will increase the heat output to 20,000 - 21,000 kcal/h. There are 3 diagrams and 4 graphs.

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25(0) SOV/117-59-5-27/30

AUTHORS: Tsikurin, M.V., Candidate of Techn. Sciences, and Gorokhov, N. K.

TITLE: On the Problem of Classification and Conventional Designations for Metal-Cutting Machine Tools

PERIODICAL: Mashinostroitel', 1959, Nr 5, pp 45-48 (USSR)

ABSTRACT: The authors refer to an article on this subject (A.V. Rumyantsev, "Mashinostroitel'", 1958, Nr 4) suggesting the basic principles, and point out that a new classification is badly needed, and that the Sovnarkhozes are developing their own designation systems for identical things, which will cause much difficulty. The position with the fasteners is particularly bad, which is illustrated by the example of 19 different designations for one and the same cylindrical-head of 4 mm diameter and 20 mm length (K-19, 1-52, A51062-5, 09-12, etc., including "VTsM4x20-2500244"). Apart from that, some plants have their own (different) names for the same fasteners. The authors suggested the basic classification principles before and repeat the essence of their system

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SOV/117-59-5-27/30

On the Problem of Classification and Conventional Designations for Metal-Cutting Machine Tools

illustrating the idea by designation tables for lathes and for lathe subassemblies and parts. There are 3 tables.

Card 2/2

TSIKURIN, N.V., kand. tekhn. nauk; DENISOV, N.V., inzh., retsenzent; IZAKOV, N.R., kand. tekhn. nauk, dots., red.; BARYKOVA, G.I., red.izd-va; SMIRNOVA, G.V., tekhn. red.

[Standardization in the machinery industry] Normalizatsiia v mashinostroenii. Moskva, Mashgiz, 1963. 186 p. (MIRA 16:4)

(Machinery industry--Standards)

Tsikurin, N.V.

28-1-27/42

AUTHOR: Tsikurin, N.V., Candidate of Technical Sciences, Gorokhov, N.K., Engineer

TITLE: Repair Drawings (O remontnykh chertezhakh)

PERIODICAL: Standartizatsiya, # 1, Jan-Feb 1957, p 75 (USSR)

ABSTRACT: Repair drawings by the standard "ГОСТ 5298-50" are, as a rule, prepared by the chief mechanic's bureau of the plant which repairs the equipment. This is costly and impractical. In the author's opinion, repair drawings ought to be made by the same organizations which produce the original work drawings and should be supplied with the equipment. Presently, the technical documents for new equipment do not include drawings which would enable repair. For instance, only 6 drawings of rapidly wearing parts are supplied with the gear shaping machine of the Komsomolets plant. This also pertains to forging and woodworking machinery, construction and road-building machines, etc.

AVAILABLE: Library of Congress

Card 1/1

TSIKURIN, N.V.

Standardization and material saving in the machinery industry.
Standartizatsiia 27 no.5:5-7 My '63. (MIRA 16:6)

(Standardization)
(Machinery industry—Management)

TSIKURIN, V.

The experience of operating T-34 tanks under winter conditions. No 11. Tankist, No 12, 1948.

TSIKURIN, V., (Engr-Lt Col)

Listed as coauthor with Engr-Lt Col V. TSIKURIN* of article, "Servicing and Repair of Armored Equipment Under Field Conditions," which appeared in Tankist, No 5, May 1954. (Sovetskaya Armiya, Group of Soviet Forces, Germany, 25 May 54).

SO: SUM No. 208, 9 Sep 1954

TSIKURIN, V.

Improving the authorized means and procedures for the winter servicing of tanks. No 12.

Tankist, No 12, 1948.

ORLOV, D.S.; TSIKURINA, N.N.

Quantitative determination of sodium in soils and soil solutions with the help of a glass electrode. Vest. Mosk. un. Ser. 6:57-62 Mr-Ap '62. (MIRA 17:7)

1. Kafedra pochvovedeniya Moskovskogo universiteta.

MARKINA, Z.N.; TSIKURINA, N.N.; KOSTOVA, N.Z.; REBINDER, P.A.

Surface activity of some soaplike semicolloids in relation to micelle formation in their aqueous solutions. Koll. zhur. 27 no.2:242-249 Mr-Ap '65. (MIRA 18:6)

1. Moskovskiy universitet khimicheskiy fakul'tet.

MARKINA, Z.N.; TSIKURINA, N.N.; KOSTOVA, N.Z.; REBINDER, P.A.

Determination of critical concentrations of micelle formations in aqueous soap solutions by the conductometric analysis. Koll.zhur. 26 no.1:76-82 Ja-F '64. (MIRA 17:4)

1. Moskovskiy universitet, khimicheskiy fakul'tet.

TSIKVADZE, Sh., Z., Cand Agric Sci (diss) -- "Basic problems of winegrowing in Meskhetia". Tbilisi, 1959, published by the TsK KP. 23 pp (Min Agric USSR, Georgian Order of Labor Red Banner Agric Inst), 150 copies (KL, No 12, 1960, 129)

Sep 52

USSR/Physics - Semiconductors

"Theory of Thermal Rectification. I. Thermovalve Effect," K.B. Tolpygo, I.M. Tsildilkovskiy, Chair of Phys Kiev State U imeni Shevchenko

"Zhur Tekh Fiz" Vol 22, No 9, pp 1442-1454

Analyzes the effect of "thermal rectification" discovered and studied by Kh.I. Amirkhanov and associates ("Iz Ak Nauk SSSR, Ser Fiz," 5, 447, 1941; "Trudy Sekt Fiz Azerbaydzhan Fil Ak Nauk SSSR," 1940; "Zhur Eksper i Teoret Fiz," 14, 187 - 195, 1944). Finds volt-amp characteristic of a homogenous semiconductor deprived of resistances near the electrodes and having a temp

227T92

gradient along the elec field. Discusses the effect for 2 boundary cases and compares results with exptl data by Amirkhanov. Indebted to V.Ye Lashkarev, Act Mem, Acad Sci USSR. Submitted 10 Jun 52.

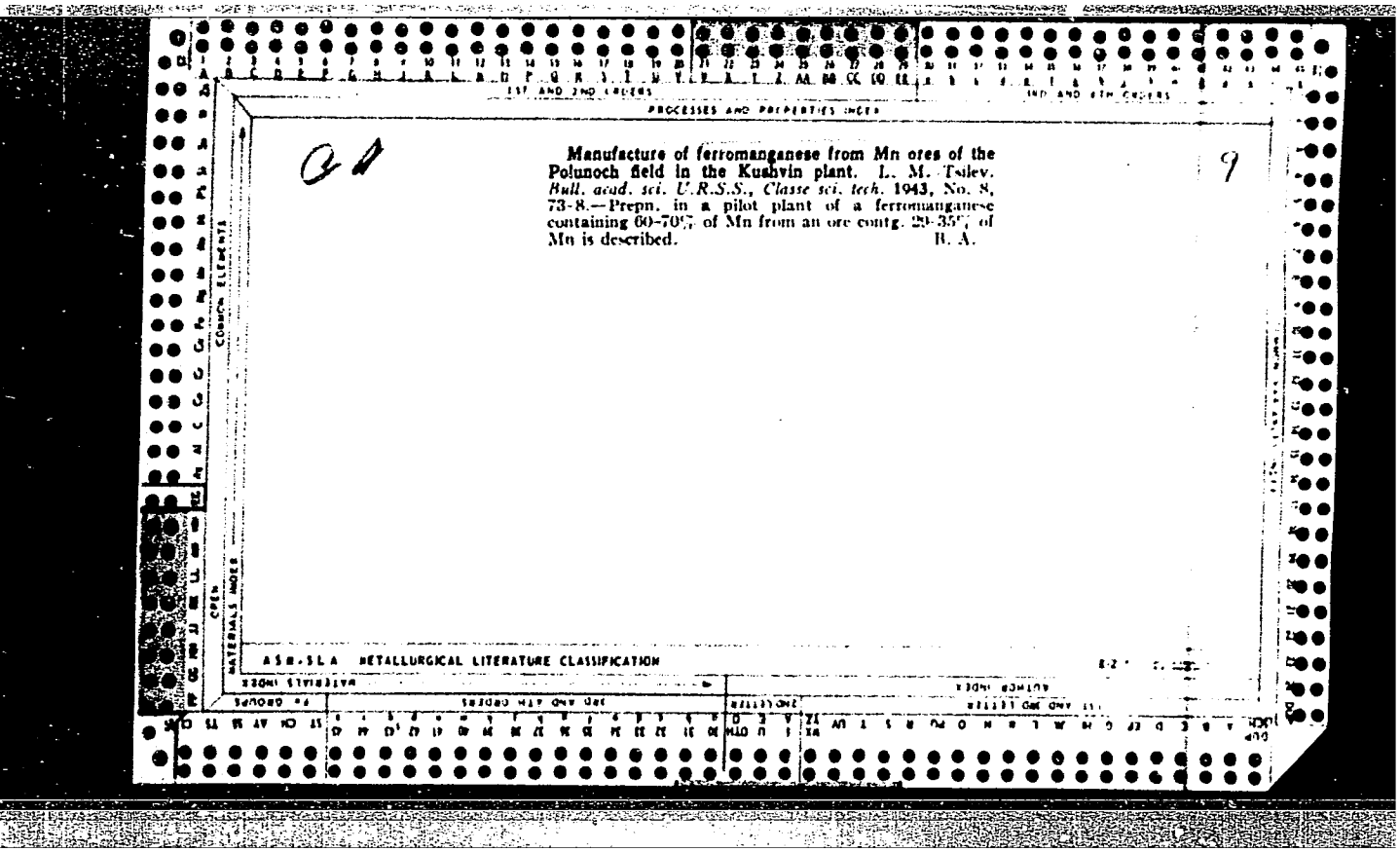
227T92

TSILDILKOVSKIY, I. M.

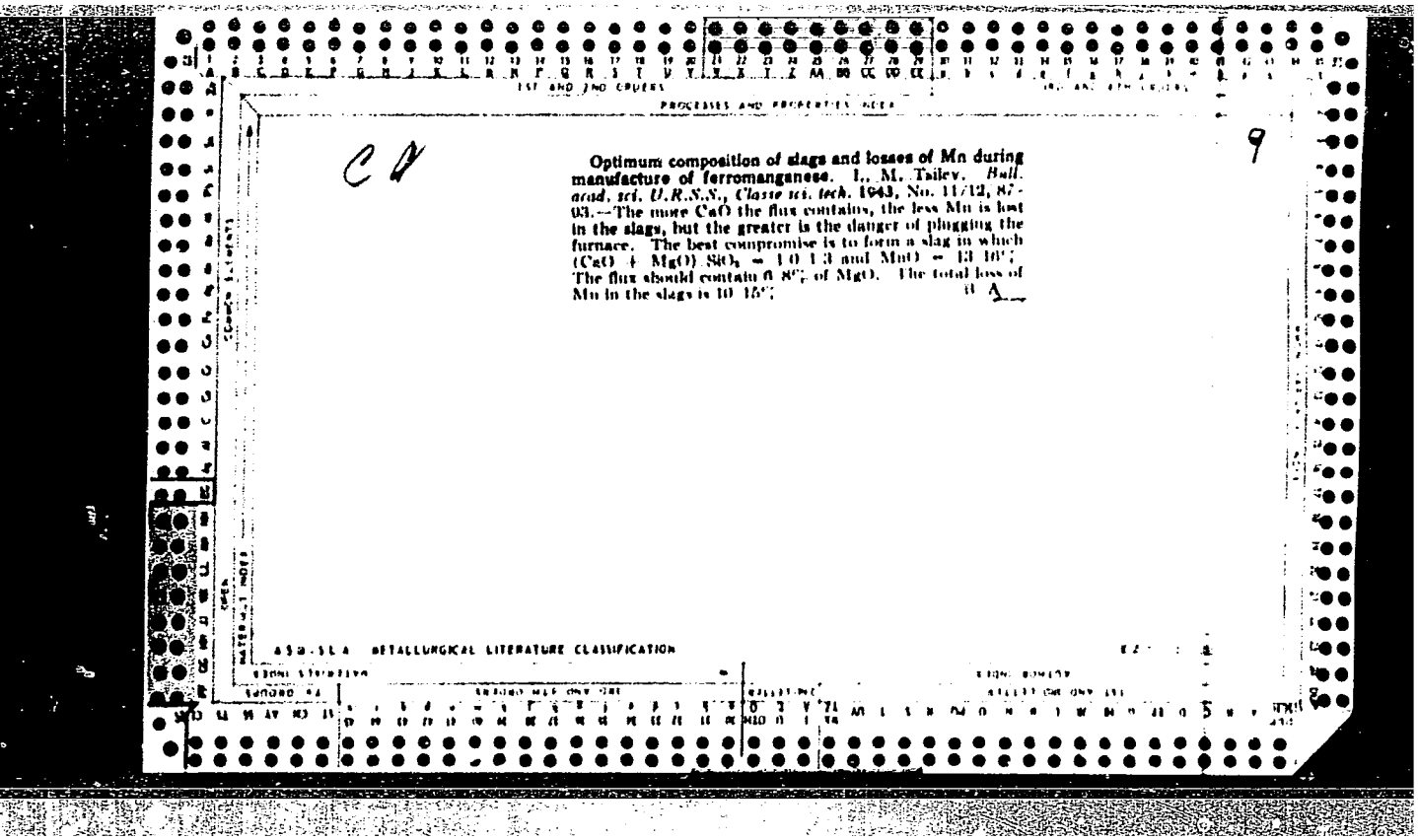
SEREBRYAKOVA, A.V.; MARINA, G.F.; TSILENKO, V.T.

Preparation of silicon tetrachloride from waste products of abrasives plants. Khim. prom. 41 no.2:60-63 F '65. (MIRA 18:4)

1. Ukrainskiy gosudarstvennyy proyektnyy institut tsvetnoy metallurgii.



Manufacture of ferromanganese from Mn ores of the Polunoch field in the Kushvin plant. L. M. Tsilev. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1943, No. 8, 73-8.—Prepn. in a pilot plant of a ferromanganese containing 60-70% of Mn from an ore contg. 20-35% of Mn is described. B. A.



C A

9

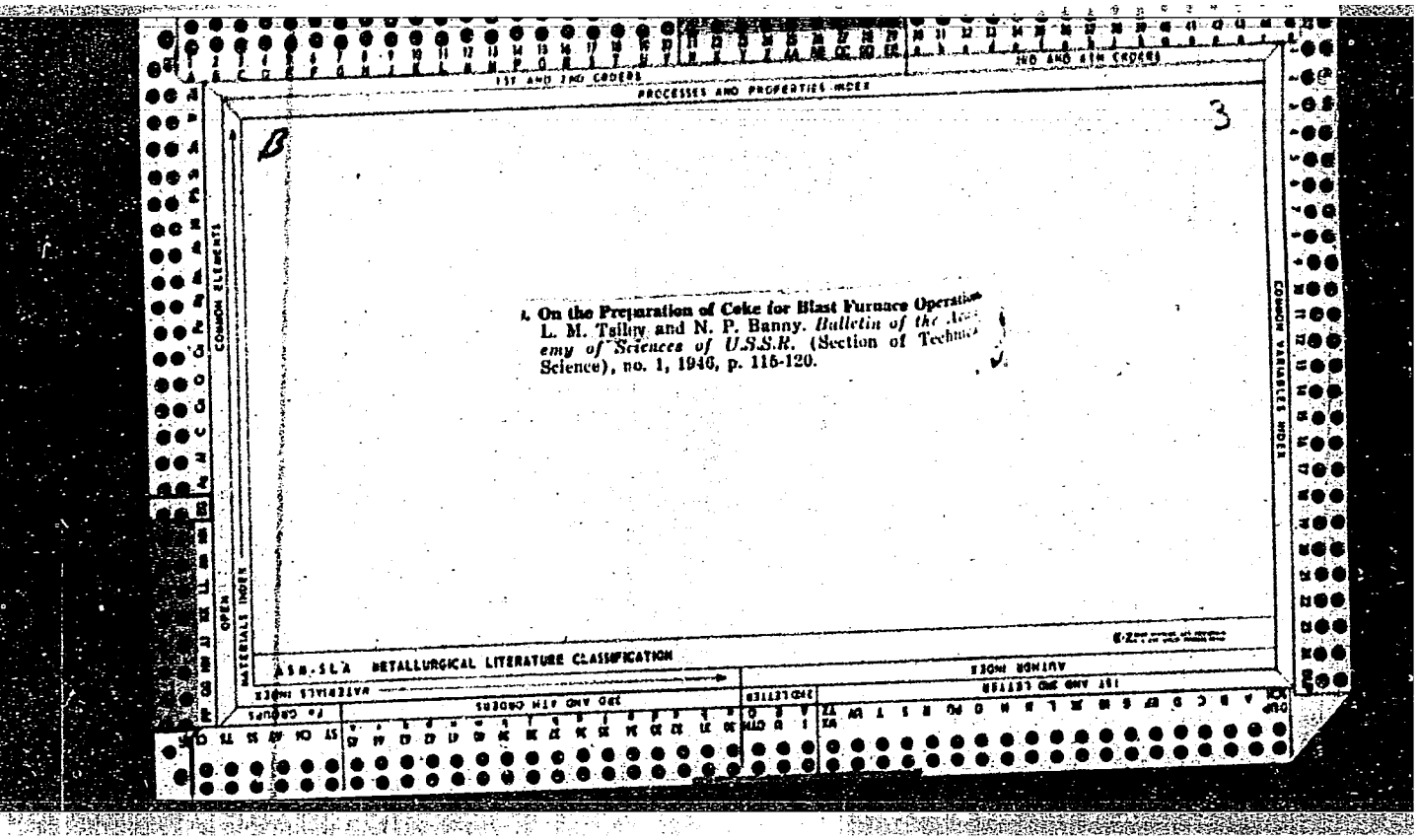
Optimum composition of slags and losses of Mn during manufacture of ferromanganese. L. M. Tailev. *Bull. acad. sci. U.R.S.S., Classe sci. tech.* 1943, No. 11/12, 87-93.—The more CaO the flux contains, the less Mn is lost in the slags, but the greater is the danger of plugging the furnace. The best compromise is to form a slag in which (CaO + MgO)/SiO_2 = 1.0-1.3 and MnO = 13-16%. The flux should contain 6-8% of MgO. The total loss of Mn in the slags is 10-15%.

H A

TSILEV, K.A. (Novosibirsk)

Development of public health in Siberia during the period of the Siberian Revolutionary Committee (1919-1925). Sov.zdrav. 19 no.5: 23-28 '60. (MIRA 13:9)

1. Iz kafedry organizatsii zdravookhraneniya i istorii meditsiny (zav. - dotsent K.A. TSilev) Novosibirskogo meditsinskogo instituta.
(SIBERIA--PUBLIC HEALTH)



KOGEN, M.M., inzh.; TSILEVICH, B.N., inzh.

Using nomograms included in Collection RS-3-44 for calculating ship plates made of lightweight alloys. Sudostroenie 24 no.3:8-9 Mr '58. (MIRA 11:4)

(Plates, Iron and steel) (Nomography (Mathematics)) (Shipbuilding)

SIDEL'KOVSKIY, M.P.; SHUM, B.M.; FRADIN, M.D.; TSILEVICH, I.Z.; BUL'SKIY, M.T.; YASHCHENKO, V.A.; KARPOV, G.D.

[Improvement of rolling-mill technology on the basis of advanced experience] Usovershenstvovanie tekhnologii v prokatnykh tsekhakh na baze peredovogo opyta. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 306 p. (MLRA 7:3)
(Rolling mills)

PAVLOVSKIY, V.Ya.; TSILEVICH, I.Z.; FRADIN, M.D.; KRISHTAFOVICH, P.D.; SHAPIRO, Yu.A.; GRIGOR'YEVA, M.G.; RAZNOTINA, Ye.T.; KRETOVA, G.V.

Rolling mill rolls of hypereutectoid chromium-vanadium 90 KhF steel. Metallurg 10 no.7:40 Jl '65. (MIRA 18:7)

1. Metallurgicheskiy zavod "Azovstal'".

GORENSHTEYN, M.M., kand.tekhn.nauk; TSILEVICH, I.Z., inzh.

Conditions for the rolling of heavy rails. Stal' 22 no.7:624-627 Jl '62. (MIRA 15:7)

1. Zhdanovskiy metallurgicheskiy institut i zavod "Azovstal'".
(Rolling (Metalwork)) (Railroads--Rails)

SIDEL'KOVSKIY, M.P.; SHUM, B.M.; FRADIN, M.D.; TSILEVICH, I.Z.; BUL'SKIY, M.T.; YASHCHENKO, V.A.; KARPOV, G.D.

[Improvement of rolling-mill technology on the basis of advanced experience] Usovershenstvovanie tekhnologii v prokatnykh tsekhakh na baze peredovogo opyta. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 306 p.

(MLRA 7:3)
(Rolling mills)

TSILEVICH, I.Z., inzh.; ISAYKIN, A.I., inzh.; KALOSHINA, Yu.P., inzh.; DUBROVIN, F.S., inzh.

Russian-built rolling mills for the manufacture of steel balls for ball mills. Met. i gornorud. prom. no.1:36-38 Ja-F '62. (MIRA 16:6)

1. Zavod "Azovstal'".
(Rolling mills) (Crushing machinery)

GORENSHTEYN, Mikhail Moiseyevich, kand. tekhn. nauk, dots.; TSILEVICH, Il'ya Zalmovich, inzh.; MEZHAUROV, Marat Mikhaylovich, inzh.; CHECHNEV, A.A., inzh., retsenzent

[Lightweight rolled sections] Oblegchennye profili prokata. Kiev, Gostekhizdat, USSR, 1963. 137 p. (MIRA 18:6)

TSILIKIN, V.Y., kand.

Investigation of the suction of ice under partly opened surface gate. Izv. VNIIG 76:271-288 '64. (MIRA 18:10)

KNYAZEVA, K.I., otv. red.; KARPENKO, V.I., red.; SHUMILINA, V.P., red. TSILIN, A.P., red.; OBZHIGALIN, K.P., red.; MEMESHKINA, L.I., tekhn. red.

[Sakhalin Province; collection of articles] Sakhalinskaia oblast'; sbornik statei. IUzhno-Sakhalinsk, Sakhalinskoe knizhnoe izd-vo, 1960. 367 p. (MIRA 14:6)

(Sakhalin)

/TSILINSKIY, Ya. Ya.

GOLOSHCHAPOV, V.A.; TSILINSKIY, Ya.Ya.; YAKIMOV, V.A.; SUBBOTINA, K., red.; LEBEDEV, A., tekhn.red.

[Budget accounting] Biudzhetnyi uchet. Avtorskii kollektiv pod rukovodstvom V.A.Goloshchapova. Moskva, Gosfinizdat, 1957. 295 p. (Budget) (Accounting) (MIRA 11:5)

TSILINSKY, Ya. Ya.

The ability of inhibitors of viral activity to slow down nonspecific degeneration of monkey kidney cell cultures. Acta virol. (Praha)[Eng] 7 no.5:479 S '63.

1. Institute of Poliomyelitis and Viral Encephalitides, U.S.S.R. Academy of Medical Sciences, Moscow.
(ECHO VIRUSES) (VIRUS CULTIVATION)
(TISSUE CULTURE) (ANTIVIRAL AGENTS)
(PHARMACOLOGY)

TSILINSKY, Ya. Ya.

Inhibitors of viral activity from uninfected cultures of stable cell lines. II. Properties of inhibitors. Acta virol. (Praha) [Eng] 7 no.5:437-446 S '63.

1. Institute of Poliomyelitis and viral encephalitides, U.S.S.R. Academy of Medical Sciences, Moscow.
(INTERFERON) (ECHO VIRUSES)
(VIRUS CULTIVATION) (TISSUE CULTURE)
(IMMUNE SERUMS)

TSILINSKY, Ya. Ya.

Inhibitors of viral activity from uninfected cultures of stable cell lines. III. Interaction of inhibitors with trypsinized monkey kidney cells. Acta virol. (Praha)[Eng] 7 no.6:542-548 '63.

1. Institute of Poliomyelitis and Viral Encephalitides, U.S.S.R. Academy of Medical Sciences, Moscow.
(ANTIVIRAL AGENTS) (TISSUE CULTURE)
(ECHO VIRUSES)

TSILINSKIY, Ya.Ya., LEBEDEV, A.D.

Method for setting up a precipitation reaction on gel. Zhur. mikrobiol.epid. i immun. 29 no.5:25-32 My '58 (MIRA 11:6)

1. Iz kafedry obshchey biologii I Moskovskogo meditsinskogo instituta imeni Sechenova.
(IMMUNOLOGY,
precipitation reaction on gel (Rus))

TSILINSKY, Ya. Ya.; LEVASHEV, V.S.

Inhibitors of viral activity from uninfected cultures of stable cell lines. IV. Study of the relationship between the contamination of cell cultures with pleuropneumonia-like organisms (PPLO) and occurrence of inhibitors. Acta virol. (Praha)[Eng] 7 no.6:549-553 '63.

1. Institute of Poliomyelitis and Viral Encephalitides; and Gamaleya Institute of Epidemiology and Microbiology, U.S.S.R. Academy of Medical Sciences, Moscow.

(ANTIVIRAL AGENTS)
(PLEUROPNEUMONIA-LIKE ORGANISMS)
(TISSUE CULTURE)

TSILINSKY, Ya. Ya.

Inhibitors of viral activity from uninfected cultures of stable cell lines. Acta virol. 7 no.4:350-360 Jl '63.

1. Institute of Poliomyelitis and Viral Encephalitides, U.S.S.R. Academy of Medical Sciences, Moscow.
(TISSUE CULTURE) (ENTEROVIRUS) (CYTOLOGY)
(PATHOLOGY) (ANTIMETABOLITES)
(VIRUS CULTIVATION)

TSILINSKY, Ya.Ya.

Inhibitors of viral activity from uninfected cultures of stable cell lines. V. Phenomenon of lowered neutralizing effect of normal bovine and human sera (gamma-globulins) on Echo 7 virus. Acta virol. (Praha) [Eng.] 8 no.4:340-349 Jl '64.

1. Institute of Poliomyelitis and Viral Encephalitides, U.S.S.R. Academy of Medical Sciences, Moscow.

LEVASHEV, V.S.; TSILINSKIY, Ya.Ya.

Contamination of tissue cultures by pleuropneumonia-like organisms (PPLO). Zhur. mikrobiol., epid. i immun. 41 no.4: 115-118 Ap '64. (MIRA 18:4)

1. Institut epidemiologii i mikrobiologii imeni Gamalei i Institut poliomiyelita i virusnykh entsefalitov AMN SSSR.

TAGER, A.A.; TSILIPOTKINA, M.V.; DREVAL', V.Ye.; NECHAYEVA, O.V.

Concentrated polymer solutions. Part 2: Thermodynamic investigation of polyisobutylene solutions in various solvents. Vysokom.soed. 5 no.1:94-99 Ja '63. (MIRA 16:1)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Propene—Thermodynamic properties) (Solvents)

TAGER, A.A.; PASHKOV, A.B.; TSILIPOTKINA, M.V.; BYKOVA, N.I.

High sorptive capacity of ion-exchange resins. Vysokom.soed. 2 no.7:997-1000 Jl '60. (MIRA 13:8)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo i Nauchno-issledovatel'skiy institut plasticheskikh mass.
(Adsorption) (Resins, Synthetic)

SOV/20-120-3-37/67

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Suvorova, A. I.

TITLE: The Determination of the Specific Surface and the Volume of the Pores of Solid Polymeric Sorbents (Opredeleniye udel'noy poverkhnosti i ob"yema por tverdykh polimernykh sorbentov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp.570-572 (USSR)

ABSTRACT: Results hitherto obtained in this field indicate the necessity of a new form of studying the processes of the interaction between high-molecular glasses and solvents. This new process might also be suited for polymers in a vitreous state as also for solid sorbents. One of these methods, which, by the way, is being widely used, is the sorption method. However, the hitherto obtained isothermal lines of sorption do not furnish any unique data concerning the porosity of the polymer. The causes of this lack of uniqueness are mentioned. This ambiguity can be avoided by using a liquid that is inert with respect to the given vitreous polymer. The structure of the polymer then does not change during the process of

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sorption, and the flexibility of the chain is not realized. The authors investigated the sorption of the vapors of inert liquids by polystyrene, polyvinyl alcohol, cellulose, and by triacetyl cellulose. Two sorbents of polystyrene with the molecular weights of 456000 and 133000 respectively, pulverulent triacetyl-cellulose with the molecular weight 140000, polyvinyl alcohol with the molecular weight 17000 and industrial linters were used as sorbents. As inert liquids methyl-alcohol was used for polystyrene and n-hexane was used for the other polymers. The apparatus used for these investigations has already been described (Ref 1). The results obtained by measurements are given in form of 2 diagrams. The isothermal lines of the sorption of methyl alcohol on polystyrene and n-hexane on cellulose are similar to the isothermal lines of the vapors of the same liquids on silica gel. Various details are mentioned. The course taken by the isothermal line of the sorption of the sample with the molecular weight 133000 is lower than that of the sample having the molecular weight 456000. This indicates an increasing loosening which takes place with a rising molecular weight

The Determination of the Specific Surface and the Volume of the Pores of Solid Polymeric Sorbents

of the polystyrene. A table contains the calculated values of the specific surface and the volumes of the pores for the polymers investigated. High-molecular polystyrene, cellulose, and triacetyl cellulose may be classed among the finely porous sorbents having a little-developed specific surface. With a reduction of the molecular weight of the polystyrene the specific surface and the volume of the pores diminish. The specific surface of the polyvinyl alcohol is very low. The results obtained indicate the possibility of a quantitative estimation of the porosity of polymers by investigating the inert liquids on them. There are 2 figures, 1 table, and 13 references, 11 of which are Soviet.

PRESENTED: December 26, 1957, by V. A. Kargin, Member, Academy of Sciences, USSR

SUBMITTED: December 25, 1957

SOV/20-120-3-37/67

The Determination of the Specific Surface and the Volume of the Pores of Solid Polymeric Sorbents

1. Polymers--Absorptive properties 2. Polymers--Adsorptive properties
3. Polymers--Porosity

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TAGER, A.A.; TSILIPOTKINA, M.V.; ROMANOVA, D.M.; DUBININ, M.M., akademik;
Prinimala uchastiye: MAMKINA, V.V.

Formation of a microporous structure in the thermal decomposition of saran. Dokl.AN SSSR 144 no.3:602-605 My '62. (MIRA 15:5)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo.
(Saran) (Porosity)

44270

S/190/63/005/001/013/020
B101/B186

15 8062

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Dreval', V. Ye., Nechayeva, O. V.

TITLE: Concentrated polymer solutions. II. Thermodynamic study of polyisobutylene solutions in various solvents

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 94 - 99

TEXT: The 25°C isotherms were plotted for the sorption of CCl_4, toluene, cyclohexane, butyl propionate, and methanol vapors by polyisobutylene having the molecular weight $1.99 \cdot 10^6$. Intense adsorption was found for CCl_4, toluene, and cyclohexane vapors, weaker adsorption for butyl propionate vapor, and no adsorption at all for methanol vapor. The properties of polymer solutions can be compared only if the concentration is given in molar parts or parts by volume, not if it is in parts by weight. The curve $\Delta\mu_1$ versus concentration in molar parts also confirmed that toluene, CCl_4, and cyclohexane were better solvents for polyisobutylene than butyl propionate. $\Delta\mu_1$ is the difference of chemical potentials; it was calculated

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Concentrated polymer...

from: $\Delta\mu_1 = 2.303RT \log(P/P_s)$, where P_s is the saturation pressure. The curves for the mixing entropy, $T\Delta S$, versus concentration, φ_2, in parts by volume, were plotted for polyisobutylene dissolved in toluene, CCl_4, cyclohexane, and isooctane. The equation found by Miller (G. Gee, Chemistry of Large Molecules) shows optimum agreement with the experimental values only in the case of the polyisobutylene - isooctane system, which is in accordance with the Flory-Huggins theory, holding for athermal systems only. In other solvents, however, a different value of $T\Delta S$ is observed for the same φ_2, i.e., the polyisobutylene chains have varying configuration numbers. $T\Delta S$, ΔH, and ΔG were calculated according to Gibbs-Duhem, and the curves $T\Delta S = f(\varphi_2)$, $\Delta G = f(\varphi_2)$, $\Delta H = f(\varphi_2)$ were plotted. They show the following maxima (in cal/mole): in toluene with $\varphi_2 \sim 0.7$, $T\Delta S_{max} \sim 220$, $\Delta H_{max} \sim 115$, $\Delta G_{max} \sim -120$; in CCl_4 with $\varphi_2 \sim 0.6$, $T\Delta S_{max} \sim 130$, $\Delta H_{max} \sim 40$, $\Delta G_{max} \sim -100$; in cyclohexane with $\varphi_2 \sim 0.5$, $T\Delta S_{max} \sim 100$, $\Delta H_{max} \sim 0$, $\Delta G_{max} \sim -80$. The positive values of ΔH show that polyisobutylene is dissolved with great

Concentrated polymer... S/190/63/005/001/013/020
B101/B186

variation of entropy. The low affinity of polyisobutylene to benzene, and the poor affinity to butyl propionate, may be due to the fact that $T\Delta S \sim \Delta H$, or $T\Delta S < \Delta H$. There are 5 figures. The most important English-language reference is: C. E. H. Bawn, M. A. Walid, J. Polymer Sci., 12, 109, 1954.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: July 20, 1961

Card 3/3

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S/020/62/144/003/028/030
B124/3101

15 2050

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Romanova, D. M., and Dubinin, M. M., Academician

TITLE: On microporous structure formation in the process of thermal degradation of Saran

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 3, 1962, 602-605

TEXT: The microporosity of active carbons obtained in the course of the thermal degradation of Saran (a copolymer of 85% vinylidene chloride and 15% vinyl chloride) was studied at temperatures between 170 and 700°C. The weight loss of Saran on heating was assumed to be equal to the weight of HCl evolved. The nitrogen adsorption isotherms of the material previously heated to various temperatures were measured at -195°C by a volumetric method and those of benzene at 24°C by a gravimetric method. The isotherms obtained for the products of thermally treated Saran are typical of molecular-sieve-type, finely porous absorbents; the limiting values of nitrogen adsorption for the sample C-700 (heated to 700°C) being 3.6 times higher than those of benzene adsorption. The structural

Card 1/2

constants in the adsorption equation, namely the limiting adsorption space volumes W_o giving the micropore volumes, and the constants B which depend on the size of the micropores were determined. (Table 2). Nitrogen with $\beta = 1$ was taken as the standard substance for the calculation of B. It is experimentally found that the evolution of hydrogen chloride in the initial stages of the thermal treatment leads to the formation of larger micropores as compared to those formed at higher temperatures. There are 3 figures and 2 tables.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: February 19, 1962

Table 2. Legend: (A) Sample; (B) Nitrogen; (C) W_o^A, cm^3/g; (D) Benzene, W_o^B, cm^3/g; (E) W_o^B/W_o^A.

(A) Образец	Азот (B) (C) W_o^A, см³/г	Азот (B) $B \cdot 10^6$	(D) Бензол, W_o^B, см³/г	(E) W_o^B/W_o^A
C	0,00	—	0,00	—
C-180	0,23	6,8	0,12	0,52
C-350	0,34	4,6	0,14	0,41
C-500	0,41	3,0	0,15	0,37
C-700	0,46	3,4	0,27	0,59

Card 2/2

5(4)

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Doronina, V. K. SOV/76-33-2-16/45

TITLE: The Effect of the Molecular Weight of Vitreous Polymers on the Packing Density of Their Chains (Vliyaniye molekulyarnogo vesa stekloobraznykh polimerov na plotnost' upakovki ikh tsepey). II. Polymethyl Methacrylates (II. Polimetilmetakrilaty)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2, pp 335 - 341 (USSR)

ABSTRACT: An estimate of the packing density of polymer chains can be obtained by a determination of the heat of solution (HS) and the sorption isotherms (Refs 1-3), as well as from the change in entropy (E) of the solvent (Refs 4,5). In this way the packing of polystyrene (Refs 1-4), cellulose (Ref 6), and polyvinyl alcohol (Refs 5,7) were determined. The data on the integral HS of polymethyl methacrylates (I) show (Ref 10) that an increase of the molecular weight to M= 10000 leads to a loosening which varies slowly but continuously with a further increase in M. For this reason three samples of (I) were chosen; sample 1 with M= 1-3.06.10^6; sample 2 with

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$M = 2.4.10^5$; and sample 3 with M= 1932. The preparation of the samples has been described previously (Ref 10). Sorption isotherms of dichloroethane (II) and methyl isobutyrate (III) on (I) were investigated, and the (HS) of (I) in (II) (Figs 1,2) was determined; from the data obtained values for $\Delta\mu_1$, ΔH_1, and $\Delta\bar{S}_1$ were calculated. It was found that (II) is more closely related to (I) than is (III). The sorption isotherms (Fig 3) of (II) on 3 samples of (I) give a picture analogous to that of polystyrene of various molecular weights. The function curves of the (HS) (Fig 5) of the solvent-composition show that with an increase in M the (HS) becomes positive. The marked decrease in the (E) of the solvent in sorption on the samples with high M cannot be explained only by the orientation of the solvent molecules on the groups of the polymer. This observation (Fig 7) is explained by a loose packing of very long, rigid chains which require a longer time for "consolidation". The looser packing thereby evidences a relaxation. With the increase in the M of the vitreous polymers the packing loosens and

thus increases the sorptivity, which occurs with an increased heat effect and a decrease in (E). The analogy between loosely-packed, high-molecular weight glasses and solid porous colloidal sorbents is only valid during the beginning stage of the sorption. There are 7 figures and 18 references, 15 of which are Soviet.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. Gor'kogo, Sverdlovsk (Ural State University imeni Gor'kiy, Sverdlovsk)

SUBMITTED: July 8, 1957

5(4) SOV/20-124-1-37/69

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Suvorova, A. I.

TITLE: The Influence of Annealing on the Density of the Packing of Polystyrene (Vliyaniye otzhiga na plotnost' upakovki polistirola)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 133-134 (USSR)

ABSTRACT: The authors investigated the influence of long annealing upon the sorption capacity of polystyrene. Annealing was carried out by slowly and gradually cooling a polystyrene sample, which had previously been heated up to +140°, for about one day. The experiment was carried out with an air-thermostat fitted with a relay and a contact thermometer. Cooling from +140° to +20° lasted one month. By keeping the polystyrene at rather high temperatures (more than 100°) for a long time destruction of the samples was caused. The viscosimetrically determined molecular weight of the annealed samples decreased from 456 000 to 110 000. As, however, the density of packing in polystyrene depends largely on its molecular weight, a direct comparison between the annealed sample with the original sample would be wrong. Therefore, a sample of

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The Influence of Annealing on the Density of the Packing of Polystyrene

SOV/20-124-1-37/69

annealed polystyrene and a fraction of not annealed polystyrene of similar molecular weight was chosen for this investigation. The authors on both samples investigated the sorption of methyl alcohol vapors, i. e. of a substance which is inert with respect to polystyrene. The isothermal lines of the sorption of methanol on the non-annealed sample has a shape which, according to A. V. Kiselev's classification, is characteristic of homogeneously fine-pored substances. The isothermal lines of sorption on an annealed sample remind of the isothermal lines of the sorption of poreless sorbents. A table contains the values of the specific surface and the volumina of pores. In the case of annealing during a very long time, the packing of molecules becomes considerably more dense, which is characterized by a reduction of pore volume and of the specific surface by 50%. This result proves the relaxation character of the looseness of the packing of high-molecular polystyrene. There are 1 figure, 1 table, and 9 references, 7 of which are Soviet.

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The Influence of Annealing on the Density of the Packing of Polystyrene

SOV/20-124-1-37/69

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

PRESENTED: August 7, 1958, by V. A. Kargin, Academician

SUBMITTED: August 6, 1958

Card 3/3

TAGER, A.A.; TSILIPOTKINA, M.V.; ROMANOVA, D.M.

Evaluating the packing density of chains of solid polymers. Part 3: Crystalline polymers. Vysokom.soed. 3 no.12:1857-1859 D '61. (MIRA 15:3)

1. Ural'skiy Gosudarstvennyy universitet imeni A.M.Gor'kogo
(Polymers) (Ethylene)

TAGER, A.A.; TSILIPOTKINA, M.V.; Prinimala uchastiye: RAKOVA, G.M.

Evaluating the packing density of chains of solid polymers. Part 4: Isotactic polystyrene. Vysokom.soed. 3 no.12:1860-1862 D '61. (MIRA 15:3)

1. Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
(Polymers) (Styrene)

S/190/61/003/012/010/012
B110/B147

AUTHORS: Tager, A. A., Tsilipotkina, M. V., Romanova, D. M.

TITLE: Estimation of packing density of chains of solid polymers. III. Crystalline polymers

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 12, 1961, 1857 - 1859

TEXT: The packing density of crystalline polymers (polyethylene (PE) and polytetrafluoroethylene (PTFE)) and of the copolymer of 15% vinyl chloride and vinylidene chlorite (saran) was examined. The sorption of inert vapors of absolute CH_3OH by PE and PTFE, and of H_2O and cryoscopically pure benzene by saran, was determined. Measurements were conducted at 25°C and 10^{-6} mm Hg. The sorption isotherms of CH_3OH on PE and PTFE are the same. In the low-pressure range (very dense packing) no sorption takes place; at $p_1/p_1^0 = 0.55$, the branch of the isotherm sharply rises (sorption

Estimation of packing density ...

of amorphous ranges), and sorption becomes constant. This phenomenon neither corresponds to sorbents with ultramicropores, nor to such without pores or with intermediate pores (S-shaped isotherms). It is caused by the two-phase structure of PE and PTFE. The sorption isotherms of H_2O and C_6H_6 vapors on saran are similar to those of nonporous, rigid sorbents, and densely packed, glass-like polymers of the polyvinyl alcohol type. As crystalline, microporous sorbents, such as zeolites, they sorb smaller H_2O molecules more readily. As for active charcoal, cellulose, and polymer fibers, also for saran, p/p_o linearly depends on $(p/p_o)/[a(1-p/p_o)]$ in the range of relative pressures of 0 ~ 0.5. The specific surface, S_{spec} = 23.4 m^2/g, calculated therefrom proves the absence of ultramicropores in saran. The authors thank T. A. Soloboyeva for assistance with experiments. A paper by M. M. Dubinin, Ye. D. Zaverina, and L. V. Radushkevich is mentioned. There are 3 figures and 8 references; 7 Soviet and 1 non-Soviet. The reference to the English-language publication reads as

Card 2/3

Estimation of packing density ...

follows: I. W. Rowen, R.L. Blain, Industr. and Engng. Chem., 39, 1659, 1947.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: January 19, 1961

Card 3/3

S/190/61/003/012/011/012
B110/B147

AUTHORS: Tager, A. A., Tsilipotkina, M. V.

TITLE: Estimation of packing density of chains of solid polymers. IV. Isotactic polystyrene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 12, 1961, 1860 - 1862

TEXT: The sorption of CH_3OH vapors on amorphous and crystalline isotactic polystyrene (PS) was examined. Isotactic PS supplied by the Kafedra vysokomolekulyarnykh soyedinenii Moskovskogo gosudarstvennogo universiteta (Department of High Molecular Compounds of Moscow State University) was purified from the catalyst by boiling it in toluene. Amorphous PS was precipitated by CH_3OH. Crystallization was conducted for 5 hr in n-octane at 116°C; dissolution took place at 60°C. According to $[\eta] = 1.13 \cdot 10^{-4} M^{0.73}$, the molecular weight of amorphous and crystalline PS was found to

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Estimation of packing density of chains ...

be 440,000. Sorption proceeded at 24.5°C and 10^{-6} mm Hg residual air pressure. The S-shaped isotherms of amorphous and crystalline PS with considerable sorption hysteresis coincide, and are characteristic of homogeneously large-pored sorbents with capillary vapor condensation. They greatly differ from that of finely porous atactic PS. This is explained according to V. A. Kargin, G. L. Slonimskiy (Ref. 4: Kratkiye ocherki po fiziko khimii polimerov (Short outlines of physical chemistry of polymers), Izd., MGU, 1960) as follows: The density of chain packing in the packet of isotactic amorphous and crystalline PS is very high. Crystallization takes place inside the packet and inconsiderably affects sorption. Due to the dense packing of chains in the packet, ultramicropores sorbing the CH_3OH molecules at low relative pressures are missing. The packets, however, form a secondary structure of very low density. In their large pores, capillary condensation takes place. According to the BET method, the specific surface, S_{spec}, was calculated and found to be 9.5 m^2/g for amorphous PS, and 6.0 m^2/g for crystalline PS. The sorption isotherms of CH_3OH on amorphous and crystalline isotactic PS are linear

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Estimation of packing density of chains ...

which corresponds to the range of applicability of the BET equation to rigid sorbents. Specific surfaces of 1 - 100 m^2/g correspond to sorbents with intermediate pores having radii of the order of 10^{-6} - 10^{-7}. For sorbents showing sorption isotherms with hysteresis, the Kelvin equation holds: $r_k = (-2\sigma \cdot V)/(RT \ln P/P_o)$ (1). Here, σ = surface tension of the liquid, the vapors of which are sorbed; V - its molar volume; $V = M/d_t^o$; M - molecular weight; d_t^o - density of liquid; T - absolute temperature; P - equilibrium pressure of vapors; P_o - pressure of the saturated vapor of the pure liquid. r_k was calculated by applying the desorption branch of the isotherm. For CH_3OH: T = 297.7°C; σ = 22.6ergs/cm^2; $d_{24.5}$ = = 0.787 g/cm^3. Thus, $r_k = (-3.2 \cdot 10^{-8})/\log P/P_o$ cm. For P/P_o, r_k = = $1.6 \cdot 10^{-6}$ cm. This size of pores exceeds molecular dimensions. G. M. Rakova is thanked for assistance with experiments. There are 3 figures

Card 3/4

Estimation of packing density of chains ...

and 9 references: 8 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: C. E. H. Bawn, R. T. I. Freeman, A. R. Kamaliddin. Trans. Faraday Soc., 46, 1107, 1950.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: January 19, 1961

Card 4/4

TSILIPOTKINA, M.V.; TAGER, A.A.; PETROV, B.S. [deceased]; PUSTOBAYEVA, G.

Evaluation of the packing density of solid polymer chains. Part 5: Determination of the specific surface area of polymers by means of nitrogen vapor sorption. Vysokom. soed. 4 no.12:1844-1850 D '62. (MIRA 15:12)

1. Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Polymers) (Nitrogen) (Sorption)

TSIL'KER, E.Ye.

RADCHENKO, P.G.; SIMIRENKO, O.I.; TSIL'KER, E.Ye.

[Rural nurseries] Sel'skie yasli. Moskva, Institut sanitarnogo prosveshcheniya Ministerstva zdravookhraneniya SSSR, 1953. 105 p.
(NURSERIES) (MIRA 11:3)

LUKOSHKINA, L.A., kand. tekhn. nauk; MAKOTINSKIY, M.P., kand. arkh.; MIKHAYLEVSKIY, P.A., inzh.; TSILLI, L.B., kand. arkh.; SHPANOV, I.A., arkh.; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; GALAKTIONOV, A.A., kand. tekhn. nauk; LIVSHITS, A.M., inzh.; ZHUKOV, K.V., kand. arkh., retsenzent; SOKOLOV, P.N., prof., retsenzent; GURVICH, E.A., red. izd-va; TEMKINA, Ye.L., tekhn. red.

[Catalog of finishing materials and products]Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.4.[Asbestos cement]Asbestotsement. 1961. 36 p. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Nauchno-issledovatel'skiy institut slyudy, asbestotsementnykh izdeliy i proyektirovaniya stroitel'stva predpriyatiy slyudinoy promyshlennosti (for Lukoshkina, Mikhaylevskiy).

(Asbestos cement)

KRESTOV, M.A., kand. arkh.; MAKOTINSKIY, M.P., kand. arkh.; TSILLI, L.B., kand. arkh.; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; DOBRYAKOVA, L.I., kand. tekhn. nauk; LIVSHITS, A.M., inzh.; MUNTS, V.O., kand. arkh.; L'VOV, G.N., inzh., retzenzent; POPOV, A.N., retsenzent; GURVICH, E.A., red.izd-va; TEMKINA, Ye.L., tekhn. red.

[Catalog of finishing materials and elements] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.6.[Concrete and mortars] Betony i rastvory. 1962. 46 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Popov).
(Finishes and finishing)

TSILMAN, L. M.
V. M. ROVICHOV, Russ. 56,131, Nov. 30, 1939

TSIL'KO, O.G.; SAVICH, M.P., red.; ZLOBIN, M.V., tekhn. red.

[We shall fulfil our milk yield obligations with honor] Obiazatel'stva po nadoiu moloka vypolnim s chest'iu. Alma-Ata, Kazakhskoe gos. izd-vo, 1956. 14 p. (MIRA 11:7)

1. Doyarka kolkhoza im. Stalina, Taldy-Kurganskogo rayona Taldy-Kurganzkoy oblasti(for Tsil'ko).
(Kazakhstan--Dairying)

T

Country : USSR
Category: Human and Animal Physiology. Action of Physical Factors. Ionizing Radiation.

Orig Pub: RZhBiol., No 19, 1958, 89382

Author : Shaposhnikova, L.D.; Tsil'ko, T.V.
Inst : Kharkov Medical Institute
Title : On the Urinary Elimination of Radioactive Phosphorus from the Organism.

Orig Pub: Tr. Khar'kovsk. med. in-ta, 1955, vyp. 35, 95-98

Abstract: No abstract.

Card : 1/1

T-147

TSILLI, N. S.

36986. Znacheniye Rezul'tatov Dermal'nykh Testov s Kraskami Kak Pokazateley Sdvigov Res Pri Streptostafilodermii. Uchen. Zapiski (L'vovsk. Nauch.-issled. Kozhno-venerol. In-t), t. II, 1949, c. 77-79

SO: Letopis' Zhurnal'nykh Statey, Vol 50, Moskva, 1949

TSIL'MAN, A.A.; KUSENOK, I.I.

Rare case of incapsulation of a parasite. Khirurgiia 35 no. 5:126-127 My '59. (MIRA 13:10)

1. Iz oblastnoy bol'nitsy (glavnyy vrach V.G. Val'ter) Birobidzhana i gorodskoy polikliniki No 1 (glavnyy vrach M.L. Peshekhod'ko).
(WORMS, INTESTINAL AND PARASITIC)

TSIL'MAN, I. V.

AID P - 695

Subject : USSR/Engineering

Card 1/1 Pub. 29 - 6/18

Authors : Tsil'man, I. V., Eng. and Matytsin, G. P., Eng.

Title : Installation for the preparation of anthracite crumb

Periodical : Energetik, 8, 15-16, Ag 1954

Abstract : The authors describe an installation of a mill for obtaining anthracite grains of 1-2.5 mm size needed for feed-water treatment. One diagram.

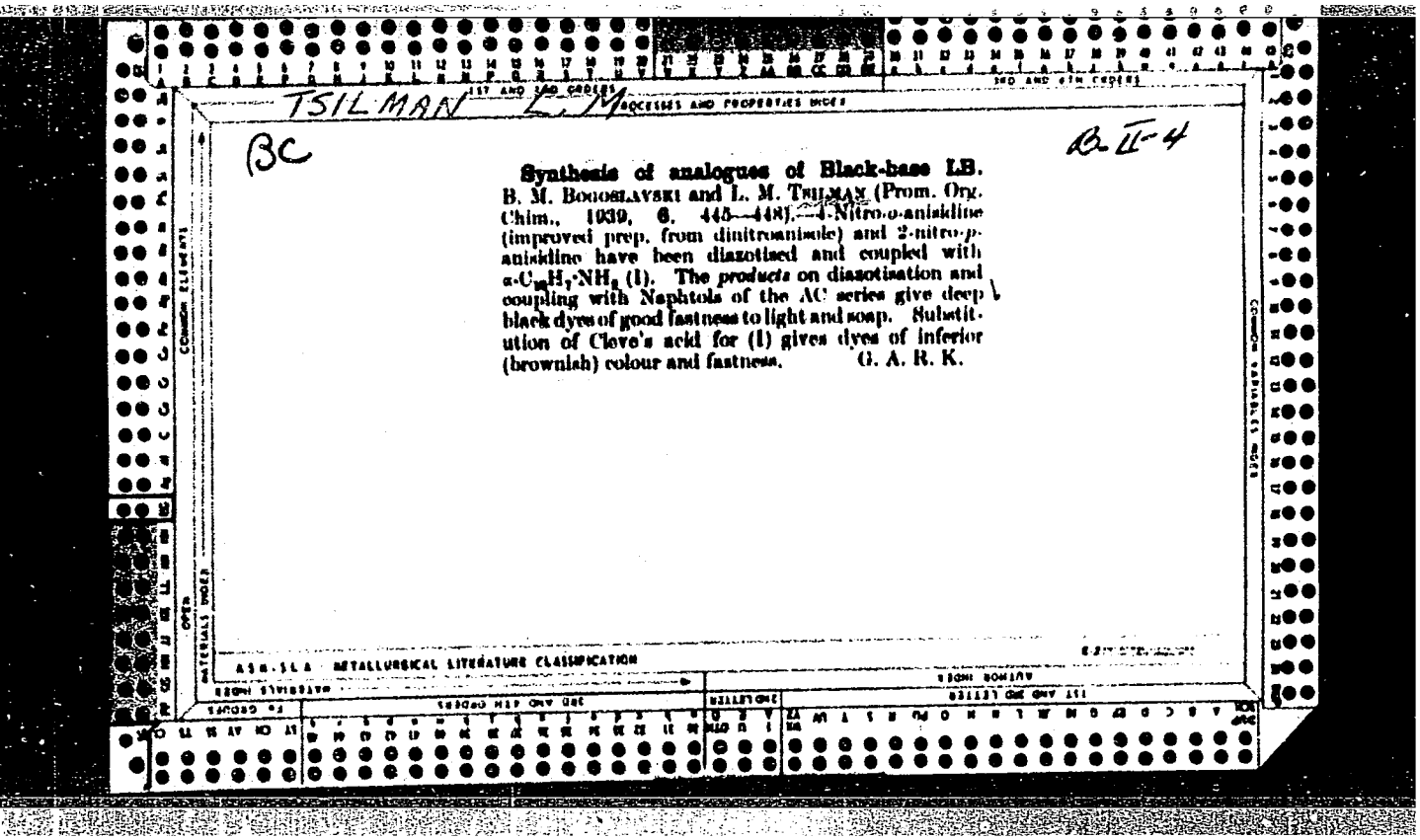
Institution : None

Submitted : No date

TSIL'MAN, I.V.

TSIL'MAN, I.V., inzhener; MATYTSIN, G.P., inzhener.

Mill installation for producing pea-sized anthracite. Energetik 2 no.8:15-16 Ag '54. (MLRA 7:9)
(Milling machinery) (Coal)



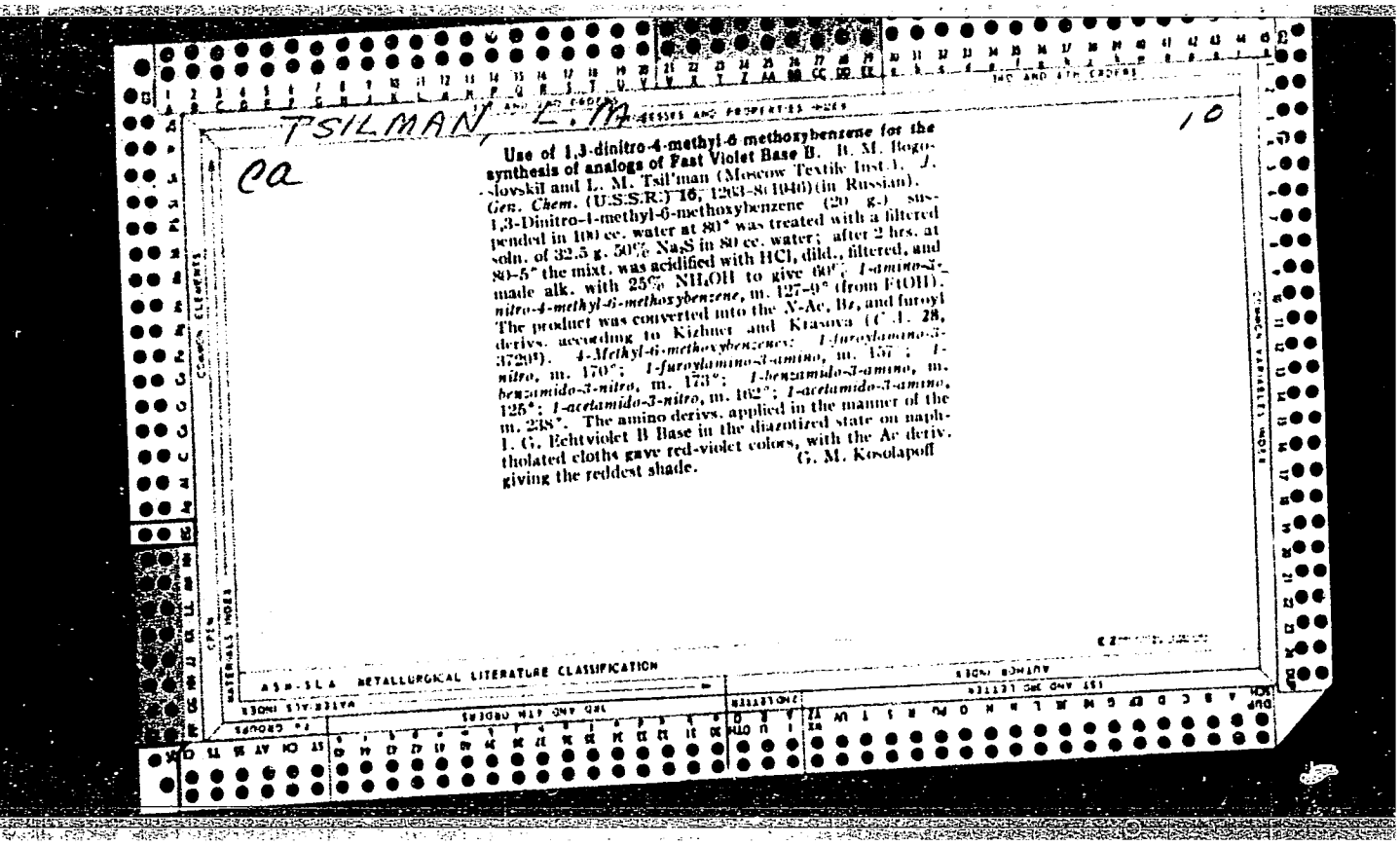
TSILMAN L. M.

BC

B-II-4

Synthesis of analogues of Black-base LB. B. M. Bogoslavski and L. M. Tsilman (Prom. Org. Chim., 1939, 6, 445—448).—4-Nitro-o-anisidine (improved prep. from dinitroanisole) and 2-nitro-p-anisidine have been diazotised and coupled with α-$C_{10}H_7$·NH_2 (I). The *products* on diazotisation and coupling with Naphtols of the AC series give deep black dyes of good fastness to light and soap. Substitution of Cleve's acid for (I) gives dyes of inferior (brownish) colour and fastness. G. A. R. K.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



TSILMAN, L. M.

10

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Use of 1,3-dinitro-4-methyl-6 methoxybenzene for the synthesis of analogs of Fast Violet Base B. B. M. Bogoslovskii and L. M. Tsil'man (Moscow Textile Inst.). *J. Gen. Chem.* (U.S.S.R.) **16**, 1283–8 (1946) (in Russian). 1,3-Dinitro-4-methyl-6-methoxybenzene (20 g.) suspended in 100 cc. water at 80° was treated with a filtered soln. of 32.5 g. 50% Na_2S in 80 cc. water; after 2 hrs. at 80–5° the mixt. was acidified with HCl, dild., filtered, and made alk. with 25% NH_4OH to give 60% *1-amino-3-nitro-4-methyl-6-methoxybenzene*, m. 127–9° (from EtOH). The product was converted into the *N*-Ac, Bz, and furoyl derivs. according to Kizhner and Krasova (*C. A.* **28**, 3720⁹). *4-Methyl-6-methoxybenzenes*: *1-furoylamino-3-nitro*, m. 170°; *1-furoylamino-3-amino*, m. *benzamido-3-nitro*, m. 173°; *1-benzamido-3-amino*, m. 125°; *1-acetamido-3-nitro*, m. 102°; *1-acetamido-3-amino*, m. 238°. The amino derivs. applied in the manner of the I. G. Echtviolet B Base in the diazotized state on naphtholated cloths gave red-violet colors, with the Ac deriv. giving the reddest shade.

G. M. Kosolapoff

TSILOSANI, G.A.

Radioactive sulfur effect on some biological properties of the wild fire of tobacco Pseudomonas tabaci (Wold et Foster) Stevens. Soob. AN Gruz. SSR 37 no.3:693-700 Mr '65. (MIRA 18:5)

DZHIGAURI, E.L.; TSILOSANI, G.A.

Specialization of Pseudomonas tabaci(Wolf et Foster) Stevens, the agent of wildfire of tobacco. Soob. AN Gruz. SSR 38 no.2: 391-396 My '65. (MIRA 18:9)

TSILOSANI, G. A.

"Bacterial Mottling of Tea Leaves in the Environment of West Georgia", Bulletin of the All-Union Scientific-Research Institute on Tea and Subtropical Crops, No. 2, pp 79-86, 1950.

TSILOSANI, G. A.

"Bacterial Diseases of Tea in the Environment of West Georgia and Development of Measures for Combating Them", Dissertation for the Degree of Candidate in Biological Sciences, Moscow, 1951, 11 pp.

TSILOSANI, G. A.

"Bacterial Diseases of Tea Under Conditions in Western Georgia and the Development of Measures for Combatting Them." Sub 4 May 51, Moscow Order of Lenin State U imeni M. V. Lomonosov.

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SO: Sum. No. 480, 9 May 55

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"Bacterial Mottling of Tea Leaves in the Environment of West Georgia," Byul v-S NII Chava i Subtrop Kultur, (Bulletin of the All-Union Scientific-Research Institute on Tea and Subtropical Crops), 1950, No. 2.

Mikrobiologiya, Vol XX, No. 5, 1951 00-W-24635

TSILOSANI, G. A.

Bacterial Diseases of Tea in the Environment of West Georgia and Development of Measures for Combating Them, Dissertation for the Degree of Candidate in Biological Sciences, Moscow, 1951.

Mikrobiologiya, Vol XX, No. 5, 1951 00-W-24635

TSILOSANI, G.A.

Effect of a radioactive sulfur isotope on some biological properties of Xanthomonas gorlencovianum Dan et Zil., a causative agent of tea bacterial canker. Soob. AN Gruz SSR 40 no.2:441-446 N '65. (MIRA 19:1)

1. Institut zashchity rasteniy, Tbilisi. Submitted Feb. 15, 1965.

TSILOSANI, N. N., Cand Phys-Math Sci (diss) -- "The theory of the intermediate connection of a two-nucleon system". Tbilisi, 1960, published by the Tbilisi U. 8 pp (Tbilisi State U im Stalin), 150 copies (KL, No 15, 1960, 132)

TSILOSANI, N.N.

Scattering of π-mesons in heavy water and the magnetic moment of heavy water on the basis of the intermediate coupling theory. Soob.AN Gruz.SSR 22 no.1:17-23 Ja '59.
(MIRA 12:5)

1. Tbilisskiy gosudarstvennyy universitet im. Stalina. Predstavleno chlenom-korrespondentom Akademii V.I. Mamasakhlisovym.
(Mesons--Scattering)
(Deuterium oxide)

TSILOSANI, N.N.

Intermediate coupling theory for a two nucleon system. Soob. AN Gruz.SSR 21 no.2:139-146 Ag '58. (MIRA 12:6)

1. Tbilisskiy gosudarstvennyy universitet im. Stalina. Predstavleno chlenom-korrespondentom Akademii V.I.Mamasakhlisovym.
(Nucleons)

MATINYAN, S.G.; TSILOSANI, N.N.

Transformation of photons into neutrino pairs and its significance in stars. Zhur. eksp. i teor. fiz. 41 no.5:1681-1687 N '61. (MIRA 14:12)

1. Institut fiziki AN Gruzinskoy SSR.
(Photons) (Netrinos) (Stars—Radiation)

TSILOSANI, N.N.

π-p Collisions at high energies. Trudy Inst. fiz. AN Gruz. SSR 9:67-75 '63. (MIRA 17:7)

TSILOSANI, N.N.

Possible mechanism underlying K⁻p resonance. Soob. AN Gruz. SSR 32 no.2:293-296 '63. (MIRA 18:1)

1. Tbilisskiy gosudarstvennyy universitet. Submitted April 4, 1962.

TSILOSANI, N.N.

Electromagnetic transitions of elementary particles (inelastic form-factors). Soob. AN Gruz. SSR 31 no. 3: 559-564 S '63. (MIRA 17:7)

26719
S/056/61/041/005/034/038
B109/B102

3,1900 (1057, 1538)

AUTHORS: Matinyan, S. G., Tsilosani, N. N.

TITLE: Transformation of photons into neutrino pairs and its significance in stars

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 5(11), 1961, 1681-1687

TEXT: The cross sections of the processes $\gamma + A \to A + \nu + \bar{\nu}$ and $\gamma + \gamma \to \nu + \bar{\nu}$ are given and discussed in connection with the luminosity and the energy removal mechanism of stars. Denotations: ε_{ikl} - antisymmetric unit tensor of the third rank, ω - the frequency of the gamma quantum, $\vec{q}$ - the momentum imparted to the nucleus, e_k - the polarization vector of the photon, p_ν and $p_{\bar{\nu}}$, respectively, the four-momenta of neutrino and antineutrino, u and v - the corresponding spinors, $G = 10^{-5}/M_p^2$, M - the proton mass; $h = c = 1$.

(A) Cross section of the process $\gamma + A \to A + \nu + \bar{\nu}$ (Fig. 2): Starting from the nonrelativistic matrix element of the transition amplitude

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$$-\frac{\alpha Z G}{2\pi\sqrt{\omega}}\frac{1}{|\vec{q}|^2}\,\varepsilon_{ikl}q_i e_k\left[\bar{u}(p_\nu)\gamma_l(1+\gamma_5)v(-p_{\bar{\nu}})\right] \qquad (1)$$

and after averaging over all directions of polarization of the neutrino and the antineutrino and integration over the $\bar{\nu}$ and ν directions one obtains $\sigma_1 = (7/576\,\pi^5)\,Z^2\alpha^2G^2\omega^2$ for the total neutrino pair production cross section according to Fig. 2. In the case of $\omega = 250$ kev, $\sigma_1 = 0.4Z^2\cdot10^{-52}$ cm^2, i.e., aside from conditions as in stellar interiors, σ_1 is insignificant. (B) The approximative expression $\sigma_2 \approx (\alpha^2G^2/2\pi^5)\omega\omega'$ is given for the cross section of the process $\gamma+\gamma \rightarrow \nu+\bar{\nu}$ (Fig. 3a; the double line indicates an intermediate vectorial boson of mass M). ω and ω' are the frequencies of the incident photons. The energy transfered from photons to neutrino pairs per cm^3 per sec in a $\gamma + A \rightarrow A + \nu + \bar{\nu}$ process is

$$q_\nu^{(1)} = \int\omega\sigma_1 n_{nucl}\,dn_\gamma = 3.4\cdot10^{-8}\,\frac{\varrho}{\nu}\,T^6 \qquad (6),$$

where n_{nucl} denotes the number of nuclei per cm^3, ϱ - the mean density.

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$1/\nu = \sum C_i Z_i^2/A_i$, C_i - the weight concentration of an element, Z_i - its atomic number, A_i - its atomic weight. The sum goes over all elements occurring in the considered stellar matter. T is given in kev. Eq. (6) shows that the energy liberation in a $\gamma + A \rightarrow A + \nu + \bar{\nu}$ process is considerable as soon as there are almost no nuclear fusions and the stellar matter is characterized by a large Z. The rate of energy liberation by $\gamma + \gamma \rightarrow \nu + \bar{\nu}$ is approximately $q_\nu^{(2)} \approx 1.8 \cdot 10^{-8} T^9$. Denoting the specific energy liberation rate determined by G. M. Gandel'man and V. S. Pinayev (Ref. 4: ZhETF, 37, 1072, 1959) by q_γ, one has $q_\nu^{(1)}/q_\gamma \approx 2.5 \cdot 10^2 T^{3/2}/\varrho$ for stars consisting of only Mg^{24}. This indicates that $q_\nu^{(1)} > q_\gamma$ already at $T > 50$ kev and $\varrho \approx 10^5$. For the neutrino luminosity

$$L_\nu^{(1)} = \int q_\nu^{(1)} dv = 3{,}4 \cdot 10^{-8} \frac{1}{\nu} 4\pi \int_0^R \rho T^6 r^2 dr, \qquad (8)$$

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(R stellar radius); relative to L_ν (Ref. 4), $L_\nu^{(2)}$ (process $\gamma + \gamma \to \nu + \bar{\nu}$), and L_γ (photon luminosity) one has

$$L_\nu^{(1)}/L_\gamma = 10^{-11}\rho_c^2/\nu\mu b T_c^{0,5}, \quad (10),$$

$$L_\nu^{(1)}/L_\nu = 1{,}3\cdot 10^2 \mu_e T_c^{1,5}/\rho_c, \quad (11),$$

$$L_\nu^{(2)}/L_\gamma \approx 5{,}82\cdot 10^{-12} T_c^{2,5}\rho_c/b\mu \quad (16),$$

$$L_\nu^{(2)}/L_\nu^{(1)} \approx 0{,}48\nu T_c^3/\rho_c. \quad (17),$$

where $1/\mu_e = \sum C_i Z_i/A_i$, b - the Kramers coefficient for the photon path in the stellar interior (= 1 for Mg). T_c and ϱ_c, respectively, denote temperature and density in the center of the star. The considered processes play a considerable role at high temperatures and densities. The energy liberated in the process $\gamma + A \to A + \nu + \bar{\nu}$ of 1 g of substance amounts 10^3 erg/g·sec at $\varrho = 10^5$, T = 42 kev ($5\cdot 10^8$ °K), and Z = 12. This value is above the energy emitted via photons. B. M. Pontekorvo (ZhETF, 36, 1615,

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1959) and G. M. Gandel'man and V. S. Pinayev (ZhETF, 37, 1072, 1959) are mentioned. There are 4 figures and 12 references: 6 Soviet and 6 non-Soviet. The four most recent references to English-language publications read as follows: G. Gamow, M. Schoenberg. Phys. Rev., 59, 539, 1941; R. Feynman, M. Gell-Mann. Phys. Rev., 109, 193, 1958; H. Y. Chiu, R. Stabler. Phys. Rev., 122, 1317, 1961; M. Gell-Mann. Phys. Rev. Lett., 6, 70, 1961.

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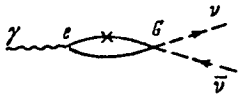

Fig. 2

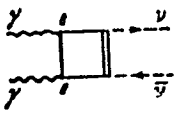

Fig. 3

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Angular distribution in the reactions $N^{14}(N^{14},1')N^{15}$ and $Mg^{25}(N^{14},N^{13})Mg^{26}$. Soob. AN Gruz. SSR 29 no. 3:283-287 S '62 (MIRA 19:1)

1. Tbilisskiy gosudarstvennyy universitet. Submitted October 20, 1961.